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September 1, 1999

Mr. Todd Thompson, P.E.
Associate WRC Engineer
State Water Resources Control Board
P.O. Box 944213
Sacramento, CA 94244-2130

re: Comments On the Draft EIR For The State General Order For Biosolids Applications

Dear Mr. Thompson:

I am a licensed civil engineer and licensed agricultural engineer experienced in all phases of wastewater treatment and reuse. I have completed a number of projects for determining biosolids application rates for agriculture and have permitted several projects in the San Joaquin Valley. Based on my background and experience, I have the following comments. Generally, the draft is well thought out and well written. I commend you and your consultants.

1. Page ES-6, **Overview** - Add a sentence in here stating that if the criteria for a site are not met for the general order, the Waste Discharge Requirements can be obtained for the application. Not meeting the criteria within the general order does not preclude an agency obtaining a permit through other channels. | 30-1

2. Page 2-9, **Provide Regulatory Framework.....** - Again add a sentence stating that if criteria not met for the general order, a permit can still be obtained through the Regional Board on a case by case basis. | 30-2

3. Page 2-15, **Monitoring, reporting....** - fifth line refers to disposal site; We need to refer to these sites as land application sites or agriculture utilization sites and do away with a disposal mentality. | 30-3

4. Page 2-15, same section, second paragraph; refers to certified laboratories - it should state: "California State Department of Health Services certified laboratories". | 30-4

5. Page 2-16, **GO Exclusion Areas** - fifth bullet, the jurisdiction of the Sacramento - San Joaquin Delta, should be Zone 1 but not Zone 2 lands. | 30-5

6. Page 3-8, **Nitrates in Groundwater.....** - The last sentence in the paragraph is confusing, it would be better to say nitrate as N. | 30-6

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7. Page 3-9, **Type of Crop** - This paragraph can be easily misinterpreted and can be misleading. Historically, nitrogen fertilizers have been relatively inexpensive. However, with increased costs, smaller profit margins, and better fertilizer management practices, excess applications of nitrogen are less prominent than in the past. Areas where high nitrogen levels are found in groundwater are most frequently found near animal feedlots or dairies. | 30-7

8. Page 4-12, **Mitigation measure 4-2....** - This does not make sense both 60 day and 90 day limits are suggested. Also, there is no rational for the increased grazing restriction other than a fear of the unknown. The biosolids processing method will impact SOC concentrations and pathogen survival rates. There should be a given concentration of specific SOC's before the 30 day restriction is increased and a rational for determining whether it is 45, 60, 75, or 90 days or whatever. | 30-8

9. Page 5-29, **Mitigation measure 5-2....** - The same comment as in number 8 above applies here. | 30-9

10. Page 13-3, **Mitigation measure 13-1...** - If the crop nitrogen need and application are matched then this mitigation is unnecessary. Replacing commercial fertilizers with a slow release organic soil amendment such a biosolids will lesson the impact on groundwater. | 30-10

11. Page 14-2, **Modified GO Provisions....**, second bullet, There is not enough rational provided to justify this recommendation for increased time before grazing. | 30-11

12. Page 14-2, **Modified GO Provisions....**, fourth bullet, This should be restated to "a GO permit cannot be obtained for those areas within ½ mile of areas defined as having a high potential for public exposure". There may be situations where a waste discharge permit can be obtained from the Regional Board for an area closer than ½ mile and not be a problem. | 30-12

Please feel free to call if you have any questions or wish additional information.

Sincerely,

Dan Hinrichs

Dan Hinrichs

30-1. The commenter is correct in stating that failure to meet GO criteria does not preclude an agency from seeking an individual permit from the RWQCB. The following text has been added to page ES-6, under "Overview," immediately before the last sentence:

> Projects that fail to meet the criteria established by the GO may still apply for an individual permit from the RWQCB.

30-2. The following text has been added to page 2-10, under "Overview," immediately before the last sentence:

> Projects that fail to meet the criteria established by the GO may still apply for an individual permit from the RWQCB.

30-3. The commenter's wording request is noted. Text on page 2-15, fifth line under "Monitoring, Reporting, and Record Keeping", is modified as follows:

> ...~~disposal~~ application site is...

30-4. The second sentence of the last paragraph on page 2-15 has been revised as follows:

> Sampling must be conducted using approved methods, accurate and properly calibrated equipment, and ~~certified~~ laboratories certified by the California State Department of Health Services.

30-5. The Delta, as a whole, is defined as an area deserving special consideration in the State Water Code (Section 12220). Such areas should be evaluated site-specifically when biosolids land application is proposed.

30-6. Comment noted. Page 3-8 of the draft EIR, last sentence, is hereby revised:

> This is approximately the equivalent of the state and federal drinking water standard, 10 mg/l of nitrate expressed as nitrogen (NO_3-N).

30-7. The paragraph was not intended to be misleading. The crop types described are believed to be the ones most likely to generate nitrate leaching. Farming practices vary widely statewide; these crop types undoubtedly occur in areas where leaching has not been a problem. It is agreed that feedlots and dairies are probably a major source of groundwater nitrate contamination in some parts of the state. No revisions to the EIR are needed.

30-8. This comment also pertains to the mitigation measure that recommends extending the Part 503 regulations-specified grazing waiting period from 30 days to 60-90 days, and asks for the scientific justification. Also see Master Response 7.

As discussed under Master Response 7, there is some scientific uncertainty regarding the presence of low levels of SOCs and pathogens in biosolids. This is partially based on the lack of a good scientific database on the subject, and partially on the findings in other countries and in the NSSS study that some SOCs may persist through the sludge treatment process. Because of this uncertainty, a conservative approach is warranted. As indicated in Response to Comment 16-13, the mitigation measure is not thought to have any detrimental impact on biosolids producers, as nearly all land applicators will wait the 60-90 days while their pasture is becoming established.

30-9. See Master Responses 7 and 8.

30-10. This comment pertains to Mitigation Measure 13-1, which requires preparation of a comprehensive nutrient management plan when a RWQCB engineer determines that a proposed biosolids application would occur in an area with existing nitrate problems, or in a place susceptible to nitrate impacts on groundwater. The commenter felt this was unnecessary because the Part 503 regulations already require that the applicant match nitrogen application rates with crop agronomic nitrogen needs, and precluding biosolids use may result in replacement with inorganic fertilizers which have a greater potential groundwater impact.

It is agreed that inorganic fertilizers, which are not currently regulated for application amounts, could result in greater impacts to groundwater quality than slow-release organic fertilizers, such as biosolids. However, under the existing Part 503 regulations, the applicator could, sometime after applying biosolids, additionally fertilize the crop with conventional inorganic fertilizers, or irrigate using reclaimed wastewater. This mitigation measure merely requires the applicator to consider all sources of nitrogen when devising a crop fertilization program, for land areas that already have nitrate-impacted groundwater, or could develop such conditions because of site hydrogeologic conditions. Please note that Mitigation Measure 4-1 also requires preparation of a comprehensive nutrient management plan, because biosolids application, for example, could cause or induce deficiencies in phosphorous or other essential plant nutrients.

30-11. These comments pertain to the recommended mitigation measure of a 60- to 90-day grazing waiting period outlined in Mitigation Measure 4-2. Commenters say they found the mitigation measure confusing. A rationale was requested for the measure; instead of the waiting period, the commenter recommended a program for testing biosolids for SOCs with a waiting period depending on the concentrations of SOCs actually found in the biosolids.

Biodegradation of organic compounds, including synthetic organics in soils, is a function of soil temperature; the warmer the soil temperature the faster the rate of microbial growth and consequently biodegradation. In fact, the relationship in many environments is exponential. Biosolids applied to cool soils or during cold periods will not experience the same rate of microbial processes as biosolids applied during warm periods. Many of the pathogens may be more persistent during cold periods. For these reasons, a variable, temperature-dependent wait period was included in Mitigation Measure 4-2. The rationale given for the extended grazing waiting period was discussed in the Response to Comment 28-8 above and in Master Response 7. There is some scientific uncertainty about the persistence of some SOCs in soils to which biosolids containing these substances have been applied. This mitigation measure was specified so as to be prudent and conservative in light of the uncertainty.

Some SOCs are not easily detectable in biosolids using standard commercial testing procedures because of the difficult sample matrix and the large number of potential SOCs that exist in biosolids that could be tested for. Many SOCs are not included in the simple organic analysis scans required to be completed by generators. It is apparent that the costs of comprehensive testing of SOCs for all persistent and potentially toxic organic compounds that could be present would very expensive to many generators and land applicators. The extended 60- to 90-day grazing waiting period was recommended as a prudent alternative to costly comprehensive testing. In most cases, the pasture grasses established following soil incorporation and pasture seeding will not be sufficiently mature until at least this period to allow for sustainable grazing.

30-12. The last bullet on page 14-2 of the EIR has been revised as follows:

> Land application of Class B biosolids shall be prohibited, under the GO, within ½ mile of areas defined as having a 'high potential for public exposure'.